CLAIMS

What is claimed is:

- 1. A recombinant receptor comprising:
- a ligand-binding domain and
- a domain that comprises a heterologous bait polypeptide,

wherein the activation of said recombinant receptor is inhibited by binding of a prey polypeptide to said heterologous bait peptide.

- 2. The recombinant receptor of claim 1, wherein said recombinant receptor is a transmembrane receptor.
- 3. The recombinant receptor of claim 1 or claim 2, wherein said recombinant receptor is activated by the addition of a compound that disrupts the bait-prey interaction.
- 4. The recombinant receptor claim 1, claim 2, or claim 3 wherein said recombinant receptor is a homomultimerizing receptor.
- 5. The recombinant receptor of claims 1, claim 2, or claim 3 wherein said recombinant receptor is a heteromultimerizing receptor.
- 6. The recombinant receptor of claim 1, claim 2, claim 3, claim 4, or claim 5 wherein the binding of said prey polypeptide depends upon the modification state of said heterologous bait peptide.
- 7. The recombinant receptor of claim 6 wherein the modification state is presence or absence of phosphorylation, acetylation, acylation, methylation, ubiquitinilation or glycosylation.

31- --

- 8. The recombinant receptor of claim 6 or claim 7 wherein the change of the modification state is dependent upon binding of a ligand to the ligand-binding domain.
 - 9. A prey polypeptide comprising:
 - a polypeptide that interacts with a bait polypeptide and
- a polypeptide comprising an inhibitor of activation of a receptor and/or a recruitment site for an inhibitor of activation of a receptor.
 - 10. The prey polypeptide of claim 9, comprising:
- a polypeptide that interacts with the heterologous bait polypeptide of the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8 and a polypeptide comprising an inhibitor of a receptor.
- 11. A vector encoding the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8.
 - 12. A vector encoding the prey polypeptide of claim 9 or claim 10.
- 13. A eukaryotic cell comprising the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8.
 - 14. A eukaryotic cell comprising the prey polypeptide of claim 9 or claim 10.
- 15. The eukaryotic cell of claim 13 or claim 14, where said cell is selected from the group consisting of a mammalian cell, a fungal cell, and a plant cell.
- 16. A kit, comprising a cloning vector allowing the construction of the vector of claim 11 or claim 12.

17. A method of screening compounds that disrupt compound-compound binding, said method comprising:

screening compounds with the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8 and/or a prey polypeptide comprising a polypeptide that interacts with a bait polypeptide and a polypeptide comprising an inhibitor of activation of a receptor and/or a recruitment site for an inhibitor of activation of a receptor.

- 18. The method according to claim 17, wherein said compound-compound binding is modification state dependent.
- 19. The method according to claim 18, wherein said modification is phosphorylation, acetylation, acylation, methylation, ubiquitinilation or glycosylation.
- 20. The method according to claim 17, claim 18, or claim 19, wherein said binding is mediated by three or more partners.
- 21. The method according to claim 20, wherein at least one of the partners is not or not completely of proteinaceous nature.